

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



03 APR 2005

(43) International Publication Date
22 April 2004 (22.04.2004)

PCT

(10) International Publication Number
WO 2004/033720 A2

(51) International Patent Classification⁷: C12Q 1/68,
G01N 33/543, B01J 19/00

(21) International Application Number:
PCT/EP2003/010626

(22) International Filing Date:
24 September 2003 (24.09.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
02022631.2 9 October 2002 (09.10.2002) EP

(71) Applicant (for all designated States except US): HÔPITALS UNIVERSITAIRES DE GENEVE [CH/CH]; 24, rue Micheli-du-Crest, CH 1211 Genève 14 (CH).

(72) Inventors; and

(75) Inventors/Applicants (for US only): SCHRENZEL, Jacques [CH/CH]; 1, chemin des Tulpiers, CH-1208 Geneva (CH). FRANCOIS, Patrice [FR/FR]; 13 Allée des Cortis, F-74960 Cran-Gevrier (FR). CHARBONNIER,

Yvan [CH/CH]; 61, Chemin de Saule, CH-1233 Bernex (CH). JACQUET, Jean, Gabriel [CH/CH]; 34, Chemin des Bucherons, CH-1234 Vessy (CH). UTINGER, Dominik [CH/CH]; Paradieshofstrasse 160, CH-4054 Basel (CH). KRESBACH, Gerhard, M. [DE/DE]; Burghaldenweg 6, 79219 Staufen (DE). ABEL, Andreas [CH/CH]; Rotbergerstrasse 16A, CH-4054 Basel (CH). EHRAT, Markus [CH/CH]; Im Brühl 6, CH-4312 Magden (CH).

(74) Agent: FORAITA, Hans-Günter; Steingrubenweg 10, CH-4125 Riehen (CH).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,

[Continued on next page]

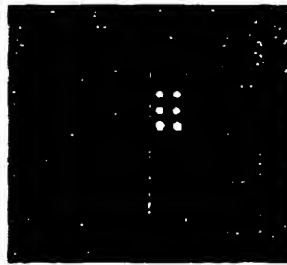
(54) Title: ANALYTICAL CHIP WITH AN ARRAY OF IMMOBILIZED SPECIFIC RECOGNITION ELEMENTS FOR THE DETERMINATION OF CLINICALLY RELEVANT BACTERIA AND ANALYTICAL METHOD BASED THEREON



*Staphylococcus
epidermidis*



*Staphylococcus
aureus*



*Pseudomonas
aeruginosa*

(57) Abstract: The invention is related to an analytical chip for the simultaneous determination of one or more different bacterial 16S-rRNA in a liquid sample comprising - an evanescent field measurement platform, e.g. an optical waveguide, as a solid carrier and - a plurality of specific recognition elements immobilized in discrete measurement areas of known location forming an array of measurement areas on said evanescent field measurement platform, wherein - a multitude (i.e. 2 or more) of different specific recognition elements is immobilized in discrete measurement areas for the recognition and detection of each different 16S-rRNA, different recognition elements being specific for different subsequences of the 16S-rRNA to be detected, which are not directly adjacent and not overlapping in the sequence of said 16S-rRNA, and - said analytical chip is operable for the detection of 16S-rRNA in the evanescent field of the evanescent field measurement platform, without an amplification (e.g. by polymerase chain reaction PCR or linear amplification "T7") of the polynucleotide sequences contained in the sample. The invention is also related to an analytical method based on the use of said analytical chip.